

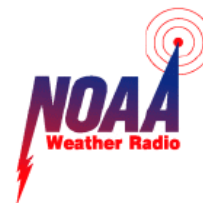
*Working Together to Save Lives*



# National Weather Service

## NOAA Weather Radio: All-Hazards Warning Capability

The FY04 President's Budget request includes \$5.5 million to automate the collection and dissemination of civil-emergency messages over the NOAA Weather Radio (NWR). This initiative will allow first responders and emergency managers to directly transmit emergency messages using NWR. This improvement will enhance message accuracy and improve security, and reduce time to disseminate civil emergency messages from 7 minutes to 2 minutes. This improvement is part of the NOAA Homeland Security Initiative.



### Background

NWR broadcasts warnings and post-event information for all types of hazards requiring quick notification under authority of the Robert T. Stafford Disaster relief and Emergency Assistance Act and FEMA's Federal Response Plan (ERP), which implements the act. These hazards include:

- weather (such as tornadoes, hurricanes, and floods)
- civil emergencies:
  - natural (such as earthquakes, forest fires, and volcanic activity)
  - technological accidents (such as chemical release, oil spill, nuclear power plant emergencies, maritime accidents, train derailments)
  - AMBER (child abduction) alerts
  - national emergencies (such as terrorist attacks)

NWR broadcasts National Weather Service (NWS) weather warnings, watches, forecasts, and other non-weather related hazard information 24 hours a day. During an emergency, NWS forecasters interrupt routine weather programming and send out a special tone that activates weather radios in the listening area. Weather radios equipped with a special alarm tone feature can sound an alert and give you immediate information about a life-threatening situation.

The current process for broadcasting non-weather civil-emergency messages requires emergency managers to call the local NWS Weather Forecast Office (WFO) to request a message to be retyped by an NWS employee and sent out over the NWR network. This labor intensive process introduces delays in delivering critical emergency information to the public, is prone to error, and is subject to potential security breach.

### Key Activities

The FY 2004 request for this activity is a one time cost to modify existing AWIPS communications software to allow emergency managers to directly transmit a civil emergency message over secure lines. The existing NWR network provides the most robust, Government owned and operated dissemination infrastructure capable of meeting the all-hazard broadcasting requirements with necessary upgrades. NWR is located in every state, linked to the Emergency Broadcast System and NOAA weather radio receivers are widely available in the commercial market.

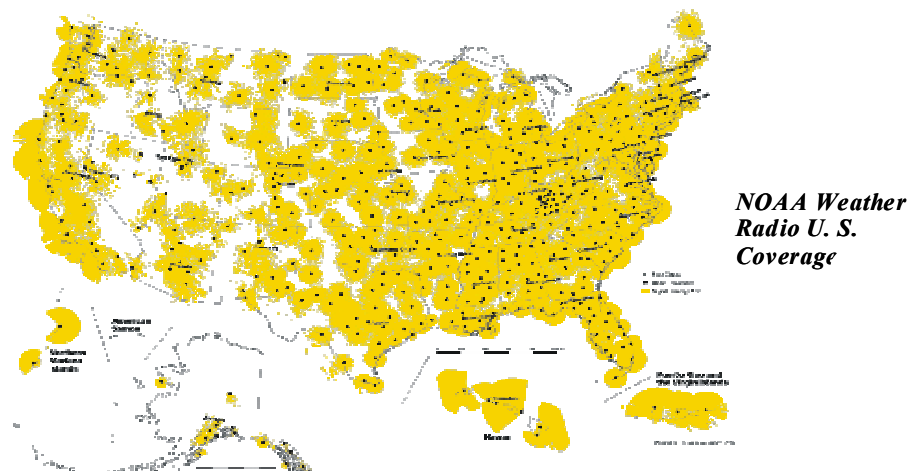
### Outcomes

This improvement to the current NWR infrastructure supports the President's priority for Homeland Security. Major outcomes include:

- Enhanced message accuracy, and improved security through direct broadcast; and
- Reduced time to disseminate civil emergency messages by an average of 5 minutes Nationwide from a current estimated average of 7 minutes to approximately 2 minutes.
- Enhanced commercial redistribution of messages (pagers, PDAs, cell phones).

### Budget Summary

Initiative	FY03 Request	FY 04 Request	Increase
NWR All Hazards Capability PAC		\$5.5M	\$5.5M





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## National Weather Service Coastal-Global Ocean Observing System

NOAA requests at total of \$2,000,000 to establish a Coastal-Global Ocean Observing System (C-GOOS) in the National Weather Service. C-GOOS will provides critical marine observation to support the coastal ocean environment; ecosystem management; climate variability and change prediction; and improved coastal forecasts.

### Background

The establishment of a Coastal-Global Ocean Observing System (C-GOOS) will establish the U.S. component of the international GOOS effort and address the mandate of the President's Commission on Ocean Policy and the National Oceanographic Partnership Program to bring together government, industry and academia.

NOAA's C-GOOS will add oceanographic sensors to the existing National Weather Service Marine Observational Backbone, and will be established through an eight year acquisition project managed by the NWS National Data Buoy Center (NDBC). In May 2002, Ocean.US called for the establishment of a U.S. Integrated and Sustained Ocean Observing System (IOOS) formed by a federal backbone infrastructure and a confederation of regional observing systems. In 1998 the National Research Council addressed the need for NWS to provide more comprehensive offshore weather information and forecasts in recognition of increased coastal zone use. This requires the NWS to increase the spatial coverage and density of marine observation platforms in support of weather and climate services aimed at the protection of life an property. These are all principal elements of the C-GOOS initiative. The new ocean measurements that C-GOOS will provide include:

- Provide definitive information on the effects of the changing climate on coastal U.S. communities
- Improve forecasts of ocean conditions which adversely impact coastline erosion and the fishing, tourism, oil and gas industries
- Allow biological and chemical water sampling
- Provide information on locations of marine endangered or protected species
- Monitor coral reef health



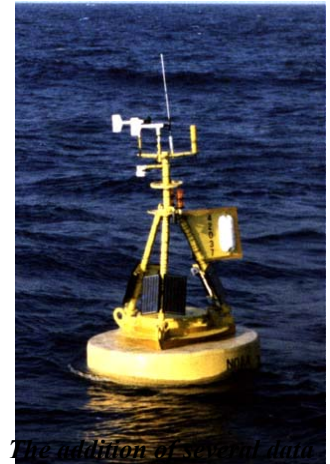
*C-GOOS will allow the NWS to better understand the effects of the changing climate in U.S. coastal communities*

## Key Activities

- Adds ocean instrumentation for water temperature, surface salinity and currents to all of the existing buoys and coastal marine stations operated by the NDBC.
- Adds 15 moored buoys and 15 Coastal Marine (C-MAN) units in data sparse areas of the coastal U.S. where the NWS lacks sufficient fixed observational platforms.

## Outcomes

- Improve the density of the NWS Marine Observation Network to improve West Coast forecasts, fill data void areas, improve Marine Forecast verification
- Modify 150 marine observing platforms with ocean observations, including currents, salinity, and ocean temperature
- Support and integrate observations from regional observatories into the NWS operational data stream; data will augment national databases and build regional information sets to assess and predict locally relevant changes
- In cooperation with the National Ocean Service's Cooperative Observing Program, this proposal will provide the ocean component to NOAA's PORTS system; Marine forecasts (particularly wind and sea) will be improved; significant impact on commercial ship traffic, commercial fishing and recreational water activities
- Use NWS platforms to assess habitats and monitor the introduction of harmful pathogens



*The addition of several data buoys is one of the improvements that will result from the implementation of C-GOOS.*

## Budget Summary

	FY03PB	FY04	Increase
Coastal-Global Ocean Observing System	\$0.0M	\$2.0M	\$2.0M



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# National Weather Service Construction

## Weather Forecast Office

The FY 2004 President's Budget includes an increase of \$3M for Weather Forecast Office (WFO) Construction. The result of this acceleration is not only an expeditious delivery of an acceptable working and living environment, but also a cost savings of approximately \$4M in deferred long-term program management and inflationary costs.

### Background

The National Weather Service (NWS) requests \$3M to accelerate completion of the ongoing NWS Facilities Construction program, including Alaska and Pacific Region facilities modernization and necessary corrective actions at NWS WFOs nationwide. This acceleration will complete the program 5 years earlier (FY 2008 vs. FY 2013) delivering an acceptable working and living environment to NWS employees quicker and saving approximately \$4M in inflation and program management costs. Employees currently occupy structures that are more than 50 years old and are overdue for upgrade/replacement. Alaska Region's unique remoteness and associated lack of housing near NWS facilities makes it necessary for NWS to provide and to maintain housing units for employees. Thirteen sites in Alaska require modernization to provide adequate working and living conditions. These sites include the weather service offices and employee housing. This modernization is essential to bring the NWS into full compliance with federal law and municipal codes.



*Housing Unit in St. Paul, Alaska*

### Key Activities

#### Alaska Region:

- St. Paul (Weather Service Office) WSO - complete construction
- St. Paul Housing - award construction contract
- Nome WSO - complete move & GFE
- Nome Housing - preliminary investigations/studies
- Annette WSO - site surveys
- Cold Bay WSO - transfer funds to FAA for joint project
- Barrow WSO - complete design
- Barrow Housing - complete construction
- Kotzebue Housing - start design

#### WFOs:

- Continue to address safety/building code violations
- Replace Heating, Ventilation, and Air Conditioning (HVAC) systems at 15 WFOs
- Continue replacement of UPS units

Pacific Region

- Hilo, WSO - complete construction

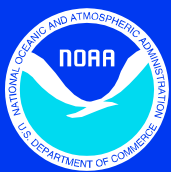
**Outcomes**

- This acceleration will complete the program 5 years earlier (FY 2008 vs. FY 2013) delivering an acceptable working and living environment to NWS employees quicker and saving approximately \$4M in inflation and program management costs.
- The NOAA/NWS mission will be maintained and enhanced by having reliable and code-compliant facilities. The Alaska program includes both office and employee housing construction.
- Correction of current code violations including electric, Americans with Disabilities Act (ADA), energy, environmental, and others will also ensure NWS employees work and live in safe accessible facilities.
- Productivity gains will also result from improved working and living conditions. The HVAC upgrades will also achieve energy savings through improvements in equipment efficiency and intelligent control systems.

**Budget Summary**

Initiative	FY 03 Request	FY 04 Request	Increase
WFO Construction	10.63	13.63	2.99





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## National Weather Service Telecommunications Gateway Legacy Systems Replacement

The FY 2004 President's Budget includes an increase of \$2.87M for a two year effort to replace the National Weather Service Telecommunications Gateway (NWSTG) switching system and repair and upgrade facilities. Replacing the NWSTG with current technology will ensure timely distribution of weather and warning forecast information in support of the NWS mission and user needs.

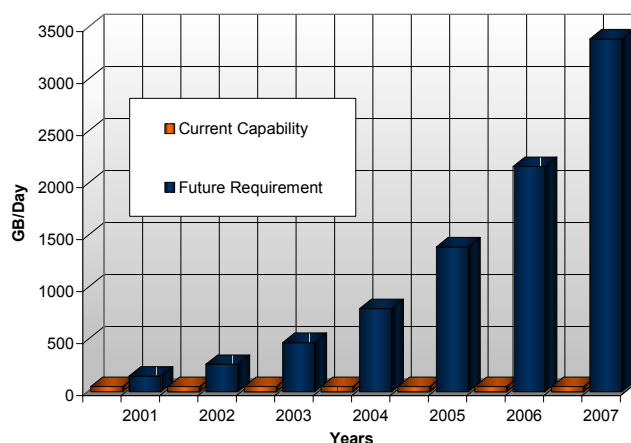


### Background

*Gateway Server Center, Silver*

*Spring, MD*

The NWSTG is the NWS' communications hub responsible for the acquisition and distribution of hydro meteorological data for National Weather Service (NWS) national centers, and forecast offices, many Federal agencies including DOD, private and commercial partners, the public, and numerous international partners. Reliable NWSTG facilities provides the ability to exchange information with NWS internal systems, other federal agencies, private partners, and other nations. Installed at NWS Headquarters in Building SSMC2, Silver Spring, MD in 1992, the NWSTG cannot meet current and projected data throughput volumes, and relies on an obsolete information system and facilities infrastructure. Increasing data volume associated with higher resolution numerical weather predication model output and advanced radar products have and will continue to degrade Message Switch throughput performance causing long delays in delivery of critical products to field offices, emergency managers, and the general community of users. Data volume associated numerical weather prediction models (NWP), radar, and satellite products will be at approximately 500 Gigabytes per day in FY 2003 and will approach 3,500 Gigabytes per day by FY 2007:



The current NWSITG IT systems are becoming nearly impossible to maintain as many spare parts are no longer available impacting system availability; in addition the IT systems cannot be expanded to accommodate increasing traffic requirements. Examples of NWSITG issues are as follows:

- Transit times for watches and warnings through the Gateway are required to be less than 10 seconds. Currently, these messages take anywhere from 30 seconds to well over 10 minutes with the mean transit time of 1 to 2 minutes.
- Other transmissions have similar requirements gaps. Message delays from the NWSITG to the AWIPS Network Control Facility can regularly exceed 40 minutes where the tolerance for delays is 1 minute.
- Aging equipment and increasing demand for system resources will further degrade the NWS ability to meet these required transmission times.

### **Key Activities**

During FY 2004, the NWS will address electric power facility deficiencies, replace the communications matrix switch and begin replacement of enterprise servers and front-end processors. During FY 2005 server and front-end processor replacement will be completed, the NWSITG cooling system will be upgraded, redundant uninterruptible power supply systems will be installed, and other facility deficiencies will be addressed. Also beginning in FY 2005, the NWS will begin a cyclical technology refresh and associated capacity increase program. This will enable the NWS to keep the NWSITG up to date with current technology, maintain reliability, keep up with data throughput demand, and avoid costly future system replacements.

The facility legacy systems replacements will permit continued highly reliable NWSITG operation by implementing systems that can be maintained under the current maintenance contract, will provide additional capabilities, such as electrical power to the expanding server farms, or needed redundancy such as dual Uninterruptible Power Systems. The legacy system replacement will also permit primary and backup site sustainability.

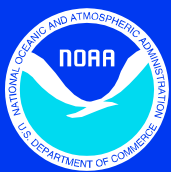
### **Outcomes**

- Meet NWSITG delivery performance targets:
  - 10 second Message Switch transit for Watches and Warnings
  - Accommodate traffic increases, user increases, and protocol changes without major disruptions.
  - Retain current reliability and maintainability of facility and IT systems at 99.9% availability.
  - Reduce dependency on unique skills, software, and systems.

### **Budget Summary**

Initiative	FY 03 Request	FY 04 Request	Increase
NWSITG Systems Replacement	-	2.87	2.87





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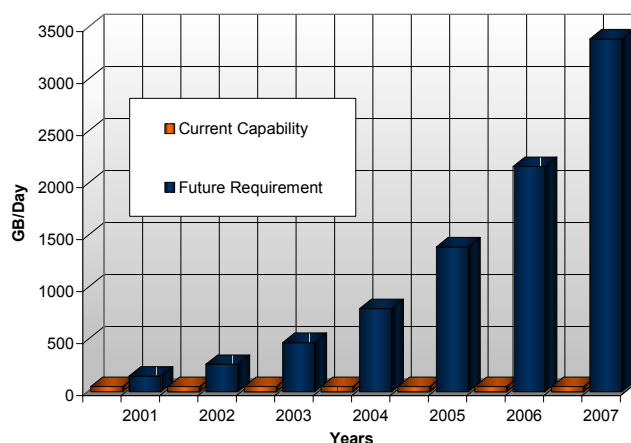


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### **Budget Summary**

Initiative	FY 03 Request	FY 04 Request	Increase
NWSITG Systems Replacement	-	2.87	2.87



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## National Weather Service NEXRAD

The FY2004 President's Budget includes a \$3.7M increase for NEXRAD Product Improvement (NPI), which accelerates hardware retrofits to improve Tornado Warning Lead Times, provide better precipitation identification and estimates, and improve flash flood warnings. The acceleration of this project will enable the National Weather Service (NWS) to improve Tornado Warning Lead Times from 11 minutes to 15 minutes by FY 2007 and increase the area of radar detection of small tornadoes by 80%.

### Background

Weather radar is vital for detecting and monitoring the movement and development of severe storms. NWS forecasters use the network of Doppler radars, called NEXRAD, to observe the presence and calculate the speed and direction of motion of severe weather elements such as tornadoes and thunderstorms. Doppler radars also provide area precipitation measurements, important in forecasting potential flooding.

NEXRAD is a tri-agency program of the NWS (Department of Commerce), the Air Force Weather Agency (Department of Defense) and the Federal Aviation Administration (Department of Transportation).

It is estimated that this improvement in tornado warning lead times can save between 10 and 40 lives a year with a corresponding savings to the economy of \$10 to \$40 million. Further, improved lead times for just one event could have dramatic effects, i.e. the May 3, 1999, Oklahoma City Barrage of Tornadoes for which warning lead times were issued up to 2 hours in advance was estimated to have saved 684 lives.

The open system architecture project, currently underway, will replace the obsolete, 12 year old computer and signal processing equipment which is growing increasingly expensive to maintain, and is unable to meet the processing demands of new scientific algorithms.

Dual Polarization will enable NWS forecasters to provide better rainfall estimates, better precipitation identification and provide information on aircraft icing potential.



***NEXRAD was honored by Federal Computer Week Magazine as one of the 10 most successful computer systems in the federal government.***

### Key Activities

The accelerated funding for NPI will enable NWS to purchase and deploy 82 NEXRAD Open Radar Data Acquisition (ORDA) systems prior to the Severe Weather season in FY 2005 (March 2005) and complete deployment of all ORDA systems by the end of FY 2006. The acceleration of the NPI Program allows full scale development of dual polarization technology in FY2004 and complete deployment of NEXRAD Dual Polarization by FY 2009.

### Outcomes

The ORDA systems, when implemented, will:

- Improve NWS tornado warning lead times from 11 minutes to 15 minutes by FY 2007.
- Improved accuracy of tornado warnings from 69% to 75% by FY 2007.
- Double the range of radar for detection of small tornadoes from 120km to 240 km, increasing area coverage by 80%.
- Accelerate the full scanning time of the radar from 5 minutes to 2.5 minutes, providing direct improvement to tornado, thunderstorm, and flash flood warnings.

Dual Polarization, when implemented, will enable NWS forecasters to provide:

- Improved Severe Thunderstorm Warnings through better detection of hail & estimated hail size and improved velocity estimates.
- Improved Flash Flood Warnings through improved rainfall estimation.
- Improved Winter Weather Products through discrimination of snow versus rain areas and providing information on aircraft icing potential.
- Improved support for the National Center for Environmental Prediction (NCEP) model initialization by providing clean reflectivity and velocity data and providing better precipitation identification (Hail, Sleet, Snow, Rain).



*Aggregate hailstone with a diameter of approximately 6 inches - the size of a grapefruit.*

### Budget Summary

Initiative	FY03 Request	FY 04 Request	Increase
NEXRAD PAC	\$8.3M	\$12M	\$3.7M



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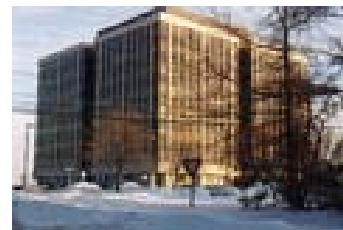
## National Weather Service NOAA's Center for Weather and Climate Prediction



The FY04 President's Budget includes \$10.4M for a new NOAA's Center for Weather and Climate Prediction. This planned new facility will replace the current World Weather Building with a new state-of-the-art facility to meet the operational requirements of NWS's National Centers for Environmental Prediction (NCEP) and NESDIS's Office of Research and Applications and Satellite Services Division, and OAR's Air Resources Laboratory. The funding will enable the NWS to award an operating lease contract for the NOAA's Center for Weather and Climate Prediction during FY 2004 and includes necessary above standard construction costs. The FY 2004 contract award will ensure building occupancy by 2008 when the current World Weather Building lease expires.

### **Background**

The World Weather Building constructed in 1973, is crowded and does not meet the National Weather Service (NWS) and the National Environmental Satellite, Data, and Information Service's (NESDIS) technology support requirements. The facility contains no raised flooring required for computer space, has single pane windows (difficult to heat and cool), has obsolete and under-performing air handling units, and is located in a high crime area. These current facility deficiencies add risk to continuity of operations and provide an inadequate work environment. Because of these issues, it has become difficult to recruit and retain quality personnel to the NWS's National Centers for Environmental Prediction (NCEP) and NESDIS.



*Current World Weather  
Building Facility in  
Camp Springs, MD*

NOAA's plan is to replace the World Weather Building with a new state-of-the-art facility with the following objectives:

- Meet NCEP and NESDIS operational and safety requirements;
- Create research synergy in weather and climate prediction;
- Accelerate transition of new science and technology into operations;
- Increase interaction between students and professors;
- Enhance recruitment opportunities.

The NWS has demonstrated the positive results of collocating its facilities with academic institutions or laboratories to accelerate research into operations and improve performance. Whenever possible, the NWS Modernization included the collocation of NWS weather forecast offices (WFO) with Research Labs/Universities (22 forecast offices collocated with laboratories, university campuses). Examples of the benefits of these synergies are as follows:

- After co-locating the Albany WFO at the University at Albany, probability of detection for winter storm watches rose from approximately 70% to 90%.
- After the Storm Prediction Center relocated from Kansas City, MO to Norman, OK and collocated with NOAA's Office of Oceanic and Atmospheric Research (OAR) National Severe Storm Laboratory (located on University of Oklahoma North Campus) Severe weather watch verification scores improved, and the transfer rate of new research into operations were reduced from approximately 7 years to 1 year.

### **Key Activities**

DOC senior management, the University of Maryland (UMD), and the State of Maryland, have agreed on a shared vision to build a Center of Excellence for Environmental Research, Education, Applications and Operations in close proximity to the University of Maryland.

- The NOAA/GSA facility acquisition process is underway: the lease prospectus has been forwarded to OMB and the site solicitation process has begun.

### **Outcomes**

Synergistic interactions between NOAA and the academic community will lead to improved model performance

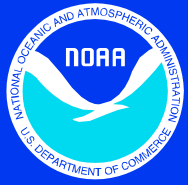
- Accelerate use of global satellite data through state-of-the-art data assimilation systems
- Improved model forecasts will improve all aspects of the NWS forecast goals for climate and weather
- Decrease the time needed to infuse new science into operations
  - Experience with synergistic relationships shows a reduction from 7-10 years to 1-3 years (NWS WFOs collocated with academic institutions have shown accelerated performance improvement)
- The new facility will greatly enhance NOAA's ability to recruit and retain key personnel.

### **Budget Summary**

<b>Initiative</b>	<b>FY03 Request</b>	<b>FY04 Request</b>	<b>Increase</b>
NOAA 's Climate and Prediction Center		\$10.4M	\$10.4M







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### **National Weather Service** **The Foundation of America's Weather Services**

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The FY2004 President's Budget includes an increase of \$47.6M for the National Weather Service (NWS) to enable the NWS to better use science and technology to serve our citizens and fulfill its vision of becoming America's "no surprise" weather service. The NWS is the U.S. federal agency charged with providing weather, water, and climate warnings and forecasts to the public. Over the last several years, our collective focus has been on delivering necessary products and services while completing the myriad of activities associated with the NWS modernization and restructuring. Our new observing systems (space, radar and ground); modern information technology assets; and training programs have combined to improve the quality of our products. By working with key partners, especially the emergency management community, we strive to ensure our products and services are responsive to the needs of the American Public.

#### **Investments**

The NWS's highest priority is to translate customer and partner needs into products and services that are trusted when needed most. NWS will meet these needs with a seamless suit of weather, water and climate products of increasingly higher resolution and accuracy. The FY 2004 President's Budget increases will allow the NWS to deliver better products and services and capitalize on scientific and technological advances.

NOAA requests an increase of \$20.1 million to fund adjustments to base for NWS activities. The increase will fund the mandatory inflationary increases for pay, service contracts, utilities, field office lease payments and General Services Administration (GSA) rent.

#### **Increase Highlights**

1. Included in the total request is \$1.3M to sustain operations and maintenance of the Susquehanna River Basin Flood System, which provides enhanced flood prediction capabilities to States along the Susquehanna River including NY, PA, and MD.
2. Also requested is an increase of \$3.6M for the Pacific Islands Compact to preserve weather observation, forecast, and warning services to the

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Microneasian States as well as core NOAA mission capabilities in the Pacific such as aviation, typhoon, and marine forecasts; climate monitoring; and support to U.S. Navy Operations.

3. An increase of \$2.2M will be used to improve overall physical security at 149 NWS facilities in order to meet the Department of Justice Level II requirements and keep maintenance and technology current.
4. \$3.7M is requested for NEXRAD Product Improvement to accelerate the deployment of the NEXRAD Open Radar Data Acquisition (ORDA) and the NEXRAD Dual Polarization improvements. These improvements will enable the NWS to improve tornado warning lead times from 11 minutes to 15 minutes by 2007, increase coverage area for small tornadoes by 80%, and accelerate volume scanning from 5 minutes to 2.5 minutes.
5. An addition of \$2.9M will be used to begin a two year effort to replace the National Weather Service Telecommunications Gateway (NWSTG) switching system and repair and upgrade NWSTG facilities to ensure reliable delivery of NWS products to users and fully capitalize on better observation data and prediction models to improve services.
6. \$2.0M is requested to establish a NWS Coastal-Global Ocean Observing System (C-GOOS) which will provide definitive information on the effects of the changing climate on coastal U.S. communities; improve forecasts of ocean conditions; allow biological and chemical water sampling; provide information on locations of marine endangered or protected species; and, monitor coral reef health.
7. To enable the NOAA Weather Radio (NWR) to have All Hazards Warning Capability, \$5.5M is needed to automate the collection and dissemination of civil-emergency messages.
8. Also requested is an increase of \$3.0M for Weather Forecast Office (WFO) Construction to accelerate completion of the ongoing NWS Facilities Construction program by 5 years, including the Alaska Region facilities modernization and necessary corrective actions at NWS WFOs nationwide to ensure code-compliant facilities.
9. A new NOAA's Center for Weather and Climate Prediction to replace the current World Weather Building requires \$10.4M to meet the operational requirements of NWS's National Centers for Environmental Prediction (NCEP), NESDIS's Office of Research and Applications and Satellite Services Division, and OAR's Air Resources Laboratory.



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### National Weather Service Pacific Islands Compact

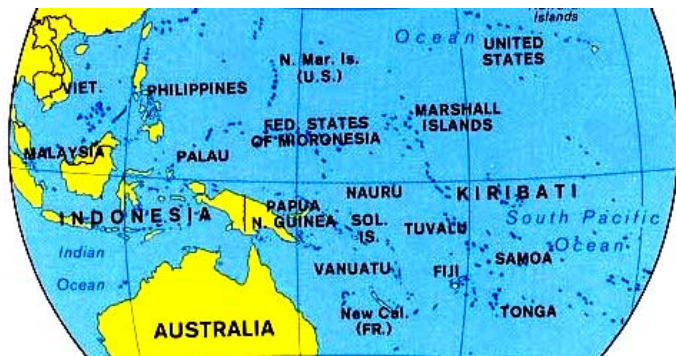
The FY04 President's Budget includes \$3.55M to preserve critical weather services core to NOAA mission capabilities in the Western Pacific such as: aviation, typhoon, and marine forecasts; climate monitoring; and support to U.S. Navy Operations. The funding will also preserve needed weather forecast and warning services to three Micronesian island nations. This increase reflects the transfer of funding responsibility for the Pacific Island Compact to NOAA from the Department of the Interior.



### Background

The U.S. maintains a Compact of Free Association (COFA) or agreement with the Republic of the Marshall Islands (RMI), the Federated States of Micronesia (FSM), and the Republic of Palau (ROP) to provide basic government and commerce services including weather services to these island nations. The Compact which is currently administered by the Department of the Interior (DOI), provides the necessary funding to support the NWS Weather Service Offices (WSO) and associated weather warning, forecast, and observation services at each of these island nations including:

- Republic of Marshall Islands:
  - WSO Majuro
- Federated States of Micronesia:
  - WSO Pohnpei,
  - WSO Yap
  - WSO Chuuk
- Republic of Palau:
  - WSO Koror



Over the past 15 years, DOI has reimbursed NWS for the cost of COFA mandated weather services. The U.S. has recently renegotiated the current COFA agreement which expires at the end of FY 2003. A second agreement, COFA2, which will cover the next 20 years, assumes weather services will be funded directly instead of through the DOI reimbursement arrangement. For the NWS, \$3.55M is required yearly to maintain the existing level of weather services in these Micronesian countries.

## Key Activities & Outcomes

### ***Micronesian Weather Services:***

Specifically, the \$3.55M will support the 5 Micronesian WSOs located at Pohnpei, Yap, Chuuk, Koror, and Majuro. Each of these WSOs is staffed with 12 contract island employees. Each WSO operates on a 24/7 basis and takes twice daily Upper Air observations and continual Aviation Surface observations. Each office, in coordination with the WFO Honolulu and WFO Guam, issues adaptive weather forecasts and warnings.

### ***Pacific Support for NWS Mission:***

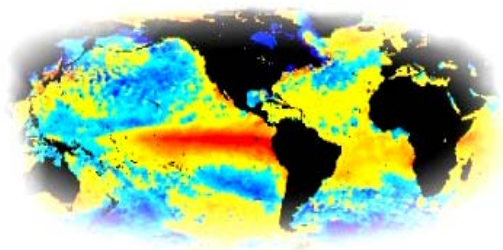
In addition to providing key weather warning and forecast services to the citizens of these island nations, the Micronesian WSOs provide critical weather observation services required by the NWS and NOAA to carry out basic mission functions.



The key uses of these weather observations are to support NWS aviation, marine, and climate forecasts as well as U.S. Navy operations. The observations are critical to support aviation flight operations in the Pacific Region, including responsibilities to U.S. carriers which have daily flights into the four islands under the Compact. The observations provide the basis for terminal aviation forecasts for the key islands in the island states issued by the NWS Honolulu WFO. In addition, the observations are

used by the WFO forecasters to issue marine forecasts and warnings including small craft advisories, marine wind and wave forecasts, for U.S. territories in the Pacific Region. The key users of these products include the U.S. cruise ship industry, commercial fishing, and marine transport.

The observations are also critical to NOAA and other international climate forecasts. The Pacific Region is an especially data sparse region for marine and surface in-situ observations. The daily observations are used continually to form and update El Nino and other Pacific ocean related climate forecasts. These data also support NOAA's role in climate monitoring and recording. Finally, the observations are used by the Joint Typhoon Warning Center. This center is responsible for issuing Typhoon warnings in the Pacific for U.S. territories and military assets including Navy ships.



## Budget Summary

Initiative	FY03 Request	FY04 Request	Increase
Pacific Islands Compact		\$3.6M	\$3.6M



*Working Together to Save Lives*

# National Weather Service The Susquehanna River Flood Basin System

## Enhanced Flood Forecasting and Warnings

The National Weather Service (NWS) requests a total of \$1,300,000 to sustain operations and maintenance of the Susquehanna River Basin Flood System. This system provides enhanced flood prediction capabilities to New York, Pennsylvania and Maryland along the Susquehanna River. The requested funding will allow the NWS continue to provide flood forecasting enhancements, maintain U.S. Geological Survey (USGS) stream gauge network, and continue outreach and community assistance.

### Background

The Susquehanna River Basin Flood System is a state-of-the-art flood warning program, operating in one of the most flood prone basins in the United States. The Susquehanna River Basin has over six times the nation average in damages per square mile each year. The Susquehanna River begins in Cooperstown, New York and flows 444 miles to Havre de Grace, Maryland, where the river meets the Chesapeake Bay.

The Susquehanna River Basin Flood Forecast and Warning System was initiated following the devastating floods of Hurricane Agnes in 1972, and Hurricane Eloise in 1975.

- Hurricane Agnes resulted in over \$2 billion in damage in the Susquehanna River Basin (over \$3 billion nationwide)



### Key Activities

The Susquehanna River Flood Basin System combines an automated real-time river and rainfall observational network, airborne snow measurement and ice network, enhanced hydrologic forecast capability, and improved forecast and warning dissemination to deliver high quality flood services to Susquehanna River basin residents.

Through Interagency partnerships with federal, state and local agencies, the National Weather Service is working to improve flood forecasts and warnings in the Susquehanna River Basin. The National Weather Service, USGS and the



Susquehanna River Basin Commission have engaged in a three-way Memorandum of Understanding to work with state and local agencies to provide improved products and services to our customers. The NWS coordinates the inter-agency task group and manages the budget of the Flood Forecast and Warning System. The NWS also maintains and updates the system’s capabilities and annually coordinates operations between the USGS and the Susquehanna River Basin Commission.

In FY 2004, of the requested \$1,300,000, \$575,000 will be utilized by the NWS for Flood Forecast Enhancements; \$575,000 will be utilized by the USGS for a Data Network; and \$150,000 will be utilized by the Susquehanna River Basin Commission for Outreach and Community Assistance. This is a prime example of a successful interagency partnership that is helping to save lives and property.

Outcomes

The FY 2004 increase of \$1,300,000 will ensure the continuity of the flood program in the Susquehanna River Basin.

Budget Summary

	FY03 PB	FY04	Increase
Susquehanna River Flood Basin System	\$0.0M	\$1.3M	1.3M

